

47. The apparatus of claim 44, further comprising:

means for allowing a user to define a rectangle within the window area; and
means for marking the portion of the document displayed in the defined rectangle as processed information and the rest of window's related information as not processed information.

48. The apparatus of claim 44, further comprising:

means for allowing a user to set one or more settings selected from the group consisting of at least: the first predetermined amount of time, the second predetermined amount of time, types of determining visual clues and their behaviors, parameters of the defined rectangle, direction of scrolling, location of processed information in a window after scrolling, whether controls and methods for defining the defined rectangle are enabled or disabled, correspondence between parameters of scrolling and types of the determining visual clues, whether the directing visual clues are enabled or disabled, whether the directing visual clues are enabled or disabled for different types of scrolling.

REMARKS -- general

By the above amendment, applicant has updated information about his current citizenship and address. Currently applicant has dual Swedish/ Russian citizenship and is a permanent resident of Sweden. Therefore, his current citizenship is indicated now as "Swedish."

Applicant has amended the specification by including description of additional related art, deleting some fragments that were considered redundant, and editing the language without adding any new subject matter.

Also, applicant has rewritten all claims to define the invention more particularly and distinctively so as to overcome the rejections and define the invention patentably over the prior art.

Information disclosure statement

A proper information disclosure statement was mailed to the USPTO on April 29, 2005 as a Swedish Post Express Mail letter (tracking number LX088240808SE), along with copies of all listed materials or their relevant portions, and a check of USD 180 to cover IDS filing fee.

Claim rejection under § 112

Claim 13 was objected to under § 112 since it was said to include a phrase "the default direction," which lacked clear antecedent basis. Claim 13 is completely re-written as a new Claim 38. The claim now reads as:

38. The method of claim 27,
wherein directing visual clues are enabled only when the second portion is the last portion of the document.

This claim has a clear antecedent basis in the original application: "The visual clues can be enabled only if the location of processed information is different from its default location, for instance, when a text is scrolled to its last portion..." (p. 30. lines 23-26 of unamended application)

The rejection of claims 1-26 on Kelley and Bates is overcome

The Office Action rejected claims 1-26 as being unpatentable over US patent 6,738,084 (Kelley et al), in view of US patent 5,973,663 (Bates et al). Claims 1-26 have been rewritten as new claims 27- 48 to define patentability over these references, and any combination thereof. Applicant requests reconsideration of this rejection, as now applicable to claims 27- 48, for the following reasons:

(a) There is no justification, in Kelley and Bates, or in any other prior art, which suggests that these references be combined.

(b) A modification, not taught in the prior art, is necessary to combine Kelley and Bates.

(c) Applicant's invention solves different problem than Kelley and Bates.

(d) Even if Kelley and Bates were to be combined in the matter proposed, the proposed combination would not show all of the novel features of claim 27.

(e) These novel features of claim 27 produce new and significant results and hence are unobvious and patentable over these references.

The references and differences of the present invention thereof

Prior to discussing the claims and the above points, applicant will first discuss the references and the general novelty of the present invention and its unobviousness over the references.

Kelley makes it possible for the user to insert a reference marker in a window displaying a document, which causes a first representation appear at the insertion point and a second representation appear in a scroll bar area at the location corresponding to the position of the insertion point within the document as a whole. The user can easily return to the marked point by pointing to the second representation on the scroll bar.

As opposed to present invention, which provides clues helping to *generally distinguish old and new information in a window* after scrolling, Kelley supports *finding specific, already referenced locations within an electronic document as a whole*: by scrolling to a window (using first representations) and locating a point within the window (using first representations).

When rejecting former Claim 1, the OA notes that Kelley's method and apparatus do the following:

- (a) provide a window 30 for displaying a portion of a document (6:24-26)
- (b) provide scroll bar 40 for scrolling the window
- (c) display in window 30 a portion of the document
- (d) receive a scroll initiate event (inherently included)
- (e) mark the related information to identify the information of interest (as processed or unprocessed information, or distinguishing the rest of the window's related information as not processed information by the unmarked areas on the scrollbar)
- (f) scroll the window to a next portion of its related information (inherently included)
- (g) provide visual clues 46, 48 directing user's attention to areas of the window which display processed information and not processed information.

However, Kelley cannot do at least two steps in the manner proposed by the present invention: (e) marking information as processed, and (g) providing directing visual clues.

Marking

Kelley teaches marking information *of interest by the user* (e.g., 2:50-57; 3:1-30). In contrast to that, the present invention discloses marking displayed portion of a document as "processed" not by the user but *according to an algorithm executed by computer-comprised means*, and gives examples of such algorithms in specifications and drawings. This difference is critical.

Displaying directing visual clues

Neither visual clues 46 (Kelley's "first representation") nor visual clues 48 (Kelley's second representation") can be helpful in directing user's attention to areas of the window which display not processed information (information, not displayed in the window before scrolling). Kelley's "first representations" are manually inserted by the user and therefore cannot help the user locate the border between old and new information in a window after scrolling to continue reading a text. The present invention accomplishes its objective because the user does not need to spend extra effort on inserting visual clues manually.

As to Kelley's "second representations" (in the scroll bar area), they might be helpful in locating information *within the whole document* but are not helpful for separating old and new information *in a window*.

Therefore, neither Kelley's "first representations" (in a window) nor "second representations" (in a scroll bar area) can help distinguish old and new information in a window in the manner suggested by the present invention.

Bates discloses a scroll bar whose appearance changes over time. When a portion of window related information is displayed, a corresponding area of the scroll bar is "warming up": the longer the portion is displayed, the higher the "temperature." When

the user scrolls to a different portion of the document, a new area of the scroll bar is "warming up," while other areas "cool down." As a result:

"... the scroll bar becomes "dirty" as an indication of where the user has been previously. Portions of the document with high usage are represented by "hotter" colors (reds & yellows) on the scroll bar. Portions of the document with low usage are represented by "cooler" colors (blues & greens) on the scroll bar. This visually aging scroll bar makes it very easy for a user to return to previously visited portions of the document." (3:1-8)

Bates only discloses visual clues displayed in a scroll bar area. This clearly differentiates it from the present invention, which discloses visual clues displayed in a window. Bates' visual clues can be helpful for returning to previously visited portions of the document but do not help distinguish processed and not processed information in a window.

Even in cases when a scroll box is divided into two parts having different colors (e.g., Fig.2, 36g), the border between the parts corresponds to the border between parts with different intensity of usage rather than between processed and not processed information.

In addition, there are also substantial differences between using time thresholds in Bates and in the present invention:

The present invention *displays directing visual clues generally immediately after scrolling.* By contrast, Bates *disables visual clues after scrolling before the first predetermined period of time*, such as 20 seconds. Delaying displaying directing visual clues in the present invention, even for a few seconds (let alone for 20 seconds), would make the clues impractical for the purpose of the present invention.

The present invention disables directing visual clues shortly after scrolling. By contrast, Bates makes the clues the more salient the longer a portion of a document remains displayed in a window (until an upper limit is reached).

Former claim 3 of the present invention teaches marking displayed portion of the document as processed only after the portion has been displayed for a predetermined amount of time. Displaying the portion for that amount of time has an effect of visual clues displayed *after scrolling*. If there is no scrolling, displaying the portion for that amount of time does not cause displaying of visual clues. By contrast,

Bates teaches enabling visual clues (creating a new region in a scroll bar area) after a sample period elapses *before next scrolling*.

Therefore, in contrast to the present invention Bates does not teach visual clues in a window (as opposed to visual clues in a scroll bar area), and Bate's teaching of time threshold is substantially different from time thresholds in the present invention.

Selected points of the above discussion are summarized in Table 1 below.

Table 1. Selected differences between the present invention (TVC) and Kelley and Bates

	TVC	Kelley	Bates
Visual clues are displayed in a scroll bar area	—	+	+
Visual clues are displayed in a window according to an algorithm ("automatically")	+	—	—
Visual clues are disabled shortly after scrolling	+	—	—
Visual clues are displayed only if there is an overlap of information before and after scrolling	+	—	—
Marking information in a window does not cause displaying visual clues until the windows scrolls	+	—	—

There is no justification, in Kelley and Bates, or in any other prior art, which suggests that these references be combined.

Kelley and Bates do not contain any justification to support their combination, much less in the manner proposed.

It would be necessary to make modifications in Kelley, or Bates, or both, not taught in the prior art, to combine the references in the manner proposed

When rejecting former claims 2, 3, 11, 19, 20 the OA notes that Bates teaches visual clues disabled before the first predetermined period of time (e.g., less than 20 seconds) and become apparent after a second predetermined time (e.g., more than 20 seconds), and that it would have been obvious to combine Bates's teaching of the time threshold to Kelley for distinguishing between interested and non-interested information.

Prior to discussing this point, applicant will first make two comments. First, the present invention provides visual clues for distinguishing between processed (presented before scrolling) and not processed (not presented before scrolling) information rather than "interested and non-interested information." The difference is important. Second, there is an uncertainty about how exactly Bates teaching of time threshold is proposed to be combined with Kelley. Combining Kelley with Bates's time threshold can be done in several ways. For instance, there could be a delay (the sampling period) between inserting a reference by a user and displaying a first representation, a second representation, or both. This way to combine Kelley and Bates is obviously not relevant to the present invention. Applicant assumes that combination of Kelley and Bates's time threshold means disabling Kelley's first and/or second representations linked to reference points after a predetermined amount of time.

However, disabling reference markers after certain amount of time can undermine the usefulness of Kelley. For instance, if Kelley's static markers ("bookmarks") disappear after few minutes, they cannot serve their function.

Arguably, even though Kelley maintains that "The reference markers are transient in nature and are only active while the current application window is open." (3:12-13), Kelley, by implication, teaches away disabling the reference markers after a predetermined amount of time *while the current application window is open*. Both dynamic and static markers are described as inserted, modified, and deleted *by a user* (e.g., 2:50-57; 3:1-30). It is explicitly said that a dynamic marker "remains in the same location within view of the active screen at all times" (13:34-35). This contrasts to Bate's time thresholds teaching that discloses *time-induced* appearance, dynamics, and disappearance of visual clues *while the current application window is open*.

Therefore, a combination of Kelley and Bates in the manner proposed would make it necessary to make a modification of one or both of them to provide a solution to a number of problems, such as separating potentially useful reference markers that should not expire and those that can be disabled after a certain period of time, or providing the user with means for modifying expiration time. No such modifications are taught in the prior art.

Applicant's invention solves different problem than the references

As shown above, both Kelley's and Bates' teachings are explicitly and predominantly concerned with helping a user find specific information in a document as a whole using representations displayed in a scroll bar area (in case of Kelley – in combination with representations displayed in a window). The present invention does not address this problem.

At the same time, the present invention teaches using visual clues directing user's attention to new information in a window immediately after scrolling. Neither Kelley nor Bates formulate this as a problem addressed by their inventions and neither Kelley nor Bates teach how to solve this problem.

Even if Kelley and Bates were to be combined in the matter proposed, the proposed combination would not show all of the novel features of claim 27

The new independent claim 27 defines the invention more particularly:

27. A method of displaying information in a window on a display device having a memory storage, while scrolling through a document displayed in the window, said window displaying only part of the document, the method comprising the steps of:

providing a window for displaying a document; and

providing means for scrolling the window; and

displaying in the window a first portion of the document; and

receiving a scroll initiate event, and

causing the first portion of the document being marked in a memory storage as processed information and the rest of the document being marked as not processed information; and

scrolling the window to display a second portion of the document;

and

causing visual clues, not obstructing the view of not processed information, to be displayed in the window to visually distinguish processed and not processed information displayed in the window, said visual clues directing user's attention to not processed information displayed in the window; and

disabling the directing visual clues after a first predetermined amount of time.

Claim 27 narrows the scope of former Claim 1 by

(a) *Combining* former Claim 1 and former Claim 2.

(b) *Limiting* the range of directing visual clues to visual clues "not obstructing the view of not processed information." This revision limits the scope of the claim without adding new subject matter. It is immediately and unambiguously obvious to those skilled in the art that all subject matter disclosed in the application disclose visual clues that do not obscure newly presented information after scrolling. The described embodiments either do not change the appearance of not processed information at all (visual de-emphasis of not processed information, dynamic borders, and marginal markers) or visually emphasize not processed information or a part of it.

Other changes in Claim 27 are simple re-formulations, which are directly and unambiguously related to the subject matter disclosed in the original application.

Claim 27 teaches visual clues that direct user's attention to not processed information in a window after scrolling without obscuring the not processed information. This novel feature is unobvious and patentable over Kelley, Bates, or any combination thereof.

As shown above, *neither Kelley nor Bates* teach visual clues that immediately after scrolling provide visual clues differentiating old (not presented before scrolling) and new information in a window and direct user's attention to area of a window that displays new information. Therefore, their combination would not show the novel features of claim 27, either.

Independent Claim 44 was revised in the same spirit as Claim 27, so the arguments formulated regarding Claim 27 are also applicable to Claim 43.

Novel features of revised claim 27 and claim 44 produce new and significant results and hence are unobvious and patentable over these references

Novel features of claim 27 and claim 44 also produce a new and significant result: the proposed method and apparatus minimize reading distractions caused by scrolling and helps a user continue reading new, not displayed before scrolling, information as soon as possible after a user scrolls to a next "page." This, in turn, results in smooth, uninterrupted reading (in a broad sense) of electronic documents, which would be appreciated by most computer users.

Neither Kelley nor Bates produces the above result. Kelley and Bates support finding already displayed information within a whole document, by using visual representations on a scroll bar and possibly (Kelley) more location-specific representation on a page after using scroll bar representations. Kelley and Bates cannot be obviously combined to produce the same result as the present invention.

Therefore, novel features of the present invention are unobvious and patentable over these references.

Other references cited in Office Action

Gould (US patent 6, 177, 938) discloses a combination of a scroll bar and a window, where the linear density of particular portions of the scroll bar reflects the density of various indicators associated with respective portions of the data file displayed in the window.

The "relativity controller" may be a useful tool providing an overview of a data file, supporting extracting segments of information from data files, or navigating large amount of information (1:60-67) but it does not support, nor does it intend to support, helping users to identify new information in a window after scrolling.

Watson (US patent application 2002/0126154) is mentioned in the Office Action as an additional reference when rejecting dependent claims (former claims 4, 9, 10, 21, 23). The revision of independent claims in the present amendment to make them patentable over Kelley and Bates makes dependent claims patentable, too, and therefore eliminates the reasons for which the reference was cited.

Also, applicant does not consider Watson a prior art. The application by Watson has the effective (filing) date of **March 13, 2001**. The conception date for the present invention is **July 13, 2000**, when applicant filed the first description of the present invention with the USPTO Disclosure Document Program ("(#476843, entitled "Transient visual clues for scrolling"). The filing was diligently followed by building and testing the invention, as indicated, for instance, by a publication reporting the building and testing at a highly reputable international conference (Kaptelinin, V., Mäntylä, T., Åström, J. Transient visual cues for scrolling: an empirical study. CHI 02: ACM Conference on Human Factors in Computing Systems, Extended Abstracts, 2002, pp. 620-621). Therefore, the invention date of the present invention is **July 13, 2000**, which is eight (8) months earlier than the effective date of Watson.

An additional reference

As applicant recently discovered, US Patent No. 6, 476, 831 to **Wirth et al** describes a technique, which makes use of a transient semi-transparent overlay superimposed on new areas of a scrolled document displayed in a window after scrolling. The

overlay temporarily obstructs the view of newly displayed areas of the document and, in general, changes the visual appearance of large areas of a window, which may distract the user.

Since the technique decreases legibility of newly presented information immediately after scrolling, it does not allow the user continue reading immediately after scrolling, because the portion of the document a user wants to read is temporarily obscured. Therefore, Wirth does not produce the result produced by novel feature of the present invention: a smooth, uninterrupted reading (in a broad sense) of electronic documents.

The dependent claims are a fortiori patentable over Kelley and Bates

New dependent claims 28 to 43 incorporate all the subject matter of claim 27 and add additional subject matter, which makes them a fortiori and independently patentable over Kelley and Bates.

Claim 28 additionally recites marking a displayed portion of a document as "processed" only if the portion is displayed for a certain time. As shown in the discussion above (section "It would be necessary to make modifications in Kelley, or Bates, or both, not taught in the prior art, to combine the references in the manner proposed"), neither Kelley nor Bates can do that. The claim revises former claim 3, so that step of detecting whether the second portion is displayed for a second predetermined amount of time is omitted as redundant, since it is inherently included in step of causing marking of the second portion only if it is displayed for a second predetermined amount or time.

Claim 29 additionally recites using various types of visual attributes as visual clues defined in Claim 27.

Claim 30 recites a particular way of directing user's attention to not processed information in a window: namely, by visual de-emphasis of processed information. The claim revises former claim 5 by omitting mentioning of "foreground and background" as redundant.

Claim 31 recites a particular way of directing user's attention to not processed information in a window: namely, displaying either processed or not processed

information after scrolling not immediately but after a delay. The claim has a clear antecedent basis in unamended application (27:22-32, 28: 1-6 of unamended application):

A special case of visual de-emphasis of processed information is using display time asynchrony, that is, displaying processed information not immediately after scrolling but after a short delay. The image that serves as a placeholder for processed information, that is, is the image presented immediately after scrolling simultaneously with not processed information in the area in which processed information is about to be displayed, can be a blank space, a blank document background, a specially assigned background, and the like. Not processed information can appear on the screen either at once or gradually. Display time asynchrony can be used in a way different from described above: processed information can be displayed immediately after scrolling, while not processed information displayed after a delay. If user's task is not extremely time-critical, such a delay can help a user to differentiate processed and not processed information.

Claim 32 recites a particular way of directing user's attention to not processed information in a window: namely, by making not processed information visually more salient. Claim 33 additionally recites making a part of not processed information more salient.

Claim 34 recites a particular way of directing user's attention to not processed information in a window: namely, by displaying a border separating processed information or not processed information.

Claim 35 recites a particular way of directing user's attention to not processed information in a window: namely, by displaying marginal markers separating processed information and not processed information. Claim 36 additionally recites using the shape of marginal markers for pointing to the area of window displaying not processed information.

Claim 37 recites a particular way of disabling directing visual clues: not at once but gradually.

Claim 38 recites enabling directing visual clues only when a document is scrolled to its last portion.

Claim 39 recites employing an effective area, which can be different from the window itself, and marking information as "processed" only if it is displayed within that effective area. Claim 40 additionally recites defining the top or the bottom level of effective area by positioning a pointing device at an appropriate level during, when using a scrolling device, such as scroll wheel, respectively for upwards scrolling (top level) or downwards scrolling (bottom level). Claim 41 additionally recites employing a screen control temporarily emerging during scrolling, which can be dragged by a user to define a top or a bottom level of effective area.

Claim 42 recites allowing a user to select options of how directing visual clues can be employed.

Claim 43 additionally recites employing directing visual clues not only when scrolling, but also when resizing a window.

New dependent claims 45 to 48 incorporate all the subject matter of independent claim 44 and add additional subject matter, which makes them a fortiori and independently patentable over Kelley and Bates.

Claim 45 additionally recites marking a displayed portion of a document as "processed" only if the portion is displayed for a certain time.

Claim 46 recites selecting parameters of directing visual clues depending on: scrolling increment, scrolling direction, location of processed information in a window after scrolling, input device used for scrolling, and type of scroll initiate event.

Claim 47 recites employing an effective area, which can be different from the window itself, and marking information as "processed" only if it is displayed within that effective area.

Claim 48 recites means for allowing a user to select options of how directing visual clues can be employed.

Conclusion

For all of the above reasons, applicant submits that the specification and claims are now in proper form, and that the claims all define patentably over the prior art. Therefore he submits that this application is now in condition for allowance, which action he respectfully solicits.

Kaptelinin

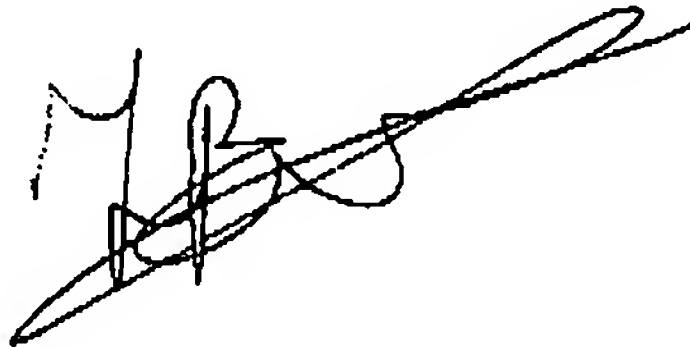
Amendment A

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Conditional request for constructive assistance

Applicant has amended the specification and claims of this application so that they are proper, definite, and define novel structure which is also unobvious. If, for any reason, this application is not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to MPEP § 706.03(d) and § 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,



Viktor Kaptelinin

Applicant Pro Se

Mariehemsv. 13A
906 54 Umeå, Sweden
Tel. +46-90-786 5927 Fax +46-90-786 6550

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Date: May 8, 2005

Inventor's signature: 